

NOTES ON SOUTH AMERICAN GRASSHOPPERS OF THE
SUBFAMILY ACRIDINÆ (ACRIDIDÆ), WITH DESCRIPTIONS
OF NEW GENERA AND SPECIES.

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The following records and descriptions are based on a portion of a rather large series of South and Central American Acridinæ recently studied by the author, the remainder of the material being considered in another paper.^a

I wish to thank the officials of the U. S. National Museum for the privilege of examining this very interesting and valuable series.

AMBLYTROPIDIA Stål.

AMBLYTROPIDIA CHAPADENSIS, new species.

Types.—Male and female; Chapada, Matto Grosso, Brazil. November. (H. H. Smith.) [Cat. No. 9481, U.S.N.M.]

Belonging to the group containing *A. trinitatis* and *elongata* Bruner and *auriventris* McNeill. From *elongata* it can readily be separated by the heavier form, broader fastigium, more robust caudal limbs, and weaker carination. From *trinitatis* it can be distinguished by the slenderer head, with much less prominent eyes and the shorter and more robust caudal femora. From *auriventris* it can be separated by the same characters that distinguish it from *trinitatis*, and in coloration it appears to be about intermediate between the two. Its closest relationship seems to be with *auriventris*, the head of that species being more compressed, and in that respect closer to *chapadensis*. The width of the head and prominence of the eyes form a good index to the relationship of the species of this small group of the genus, *elongata* representing one extreme and *trinitatis* the other, *chapadensis* and *auriventris* being interpolated between the two in the order named.

Size medium (for the genus); form moderately elongate; surface ruguloso-punctate except the pronotum which is cribriform punctate.

^a Proc. Acad. Nat. Sci. Phila., 1906.

Head with the occiput distinctly arched laterad and with a very slight longitudinal curve; fastigium about equal in width to the narrowest space between the eyes, produced cephalad of the cephalic corner of the eyes, a distance somewhat less than the proximal width, distal portion regularly produced with the apex rather bluntly rounded, lateral margins and median longitudinal carina distinct, the latter extending to and over the occiput; lateral foveolæ not distinctly marked; face very distinctly retreating, the angle greater in the male than in the female; frontal costa with the margins subparallel and in a weakened state reaching the clypeus, the intermarginal portion impresso-punctate, but not sulcate; eyes subovoid, more elongate in the male than in the female and twice the length of the infra-ocular sulcus instead of about half again as in the female; antennæ moderately depressed proximad, not expanded, in the male distinctly exceeding the head and pronotum in length. Pronotum distinctly deplane dorsad, greatest width about one and two-thirds in the length; cephalic margin arcuate, caudal margin distinctly, though obtusely, angulate in both sexes, the margins laterad of the angle being slightly emarginate, lateral angles of the disk distinctly carinate, parallel to the first transverse sulcus and very slightly divergent caudad; median carina stronger in the male than in the female, deeply severed by the last transverse sulcus, metazona slightly longer than the prozona; lateral lobes about as deep as the greatest dorsal length of the same. Interspace between the mesosternal lobes quadrate in the male, very slightly longitudinal in the female; metasternal lobes contiguous caudad in the male, separated by a narrow space in the female. Tegmina reaching to the tips of the caudal femora, bearing a slightly rounded costal expansion at the proximal fourth; no distinct intercalary vein present. Cerci rather heavy, short, acute, not exceeding the supra-anal plate; subgenital plate compressed, the apex carinate dorsad. Caudal femora moderately robust, the dorsal outline distad with a concavity not so distinct on the ventral side, and more apparent in the female than in the male; pagina with the sculpturing distinct and regular; caudal tibiæ bearing eleven (female) or twelve (male) spines on the lateral margins.

General colors russet and vandyke brown mingled and stippled one over the other, the lateral lobes of the pronotum and the pleura darker in the male than in the female, several dark elongate crescentic lines being also present on the occiput of the male; eyes clear russet in the female, speckled with darker in the male. Tegmina very dark, the vandyke brown tone predominating. Caudal femora of the female tawny olive; the pagina with a touch of olive; caudal tibiæ and tarsi very dull purple, the spines tipped with black. Abdomen of the male washed with orange-vermilion. Caudal femora of the male washed ventrad with orange-vermilion, the pagina burnt umber, the

dorsum wood brown;^a caudal tibiae and tarsi orange-rufous, the spines tipped with black.

Measurements.

	Male.	Female.
	mm.	mm.
Length of body.....	20.2	28.8
Length of pronotum.....	3.9	6.0
Length of tegmen.....	15.7	22.0
Length of caudal femur.....	12.0	17.0

A single specimen has been examined in addition to the types, a female from Sapucay, Paraguay^b belonging to the Hebard collection. It is somewhat larger than the female type (length of body 34 mm.) but does not appear separable. The caudal angle of the pronotum is broader and more obtuse than in the type, and the metasternal lobes approximate closer caudad than in the typical specimen. The general color is brown, practically uniform all over, the tegmina being, however, somewhat lighter.

ORPHULELLA Stål.

ORPHULELLA GRACILIS Giglio-Tos.

Chapada, Matto Grosso, Brazil. April. (H. H. Smith.) [U.S.N.M.]
Two males.

Corumbá, Matto Grosso, Brazil, highland. March. (H. H. Smith.)
[U.S.N.M.] Three females.

These specimens are typical of this rather doubtful form, which possibly is only an extreme type of the following species, with sub-obsolete lateral carinae. Giglio-Tos on reexamination decided it to be inseparable, but with a good series of *punctata* in hand it appears to be recognizable.

The original description says, regarding the caudal tibiae, "undique spinis 9," while the material examined shows that nine is the normal number for the external series, but the internal series numbers eleven.

ORPHULELLA PUNCTATA De Geer.

St. Thomas, West Indies. December, 1882. (A. Koebele.) [U.S.N.M.]
One male.

Bonito, Pernambuco Province, Brazil. January and February, 1883. (A. Koebele.) Several specimens labeled "Collected on cotton." [U.S.N.M.] Two adult males, four females, three nymphs.

Chapada, Matto Grosso, Brazil. April, August, and September. (H. H. Smith.) [U.S.N.M.] Two males, three females.

^aThis coloration is also found in the female, but not to the extent it is in the male.

^bMarch 15, 1905; Foster, No. 102.

Corumbá, Matto Grosso, Brazil. (H. H. Smith.) [U.S.N.M.]
Four males, one female.

These specimens exhibit considerable variation in structure and in color, as is found in any series of the species. Several of the Corumbá individuals appear to be close to *gracilis*, being slenderer than usual, but the lateral carinae are not partially obsolete as in that form. As stated above, it is possible that *gracilis* may be only an extreme form of this species.

The specimens from Pernambuco are duller and more uniform than the other individuals, but this is probably due to alcoholic collecting. The Chapada series is more variegated and richly colored than any of the other specimens. The individual from St. Thomas is quite small and rather robust, but does not appear separable when compared with a large series of this species.

COCYTOTETTIX Rehn.

1900. *Fenestra* BRUNER (not of Giglio-Tos, 1895), Acc. Gen. Spec. Locusts Argent., pp. 22, 30.

1906. *Cocytotettix* REHN, Proc. Acad. Nat. Sci. Phila., 1906.

COCYTOTETTIX LINEARIS, new species.

Types.—Male and female; Chapada, Matto Grosso, Brazil. September. (H. H. Smith.) [Cat. No. 8300, U.S.N.M.]

Apparently allied to *C. argentina* (Bruner),^a but differing in the longer, slenderer tegmina, the slenderer caudal femora, the lack of green on the costal margin of the tegmen and of cinnamon red on the base of the wings.

No close relationship exists with the other two species of the genus—*C. pulchripennis* (Bruner) and *intermedius* (Bruner)—as they both have the tegmina considerably expanded in the male and the wings strongly vermilion or rose-red proximad.

Size medium; form slender; surface slightly rugulose. Head slightly longer than the pronotum, moderately produced in the female, considerably produced in the male, the dorsum when viewed laterad quite flat; fastigium with its greatest width but slightly greater than the interspace between the eyes, the extension beyond the eyes being slightly less than the greatest width, the distal angle acute with the immediate apex blunt, lateral margins elevated and distinct, as is also the median longitudinal carina, which, in a much weaker form, extends caudad over the occiput; face strongly retreating in the male, considerably in the female; lateral foveolae not distinct, ventrad; frontal costa with the lateral margins parallel ventrad, constricted toward the fastigium, the costa excavated but not sulcate, a trace of a median ridge present dorsad; eyes rather elongate ovoid, about twice the length of

^a Acc. Gen. Spec. Locusts Argent., p. 31. [Carcaraña, Santa Fé, Argentina.]

the infra-ocular sulcus in both sexes; antennae about as long as (male) or distinctly shorter (female) than the head and pronotum together, distinctly but not strongly ensiform, more marked in the female than in the male, apex acute. Pronotum moderately deplanate dorsad, the greatest width contained about once and a half in the length in both sexes; cephalic margin subtruncate, caudal obtuse-angulate, rather rounded in the male, lateral margins carinate, subparallel; metazona very slightly shorter than the prozona in the male, distinctly, though not greatly so, in the female; median carina very distinct, cut only by the principal sulcus; lateral lobes subquadrate, the greatest dorsal length slightly greater than the depth, ventral angles rectangulate. Interspace between the mesosternal lobes slightly longitudinal in the male, very distinctly longitudinal in the female; metasternal lobes contiguous caudad in the male, subcontiguous in the female. Tegmina slender, elongate, exceeding the abdomen considerably and the tips of the caudal femora slightly in both sexes, apex rounded; a broken irregular intercalary vein, more distinct distad and evanescent proximad present in both sexes. Cerci styliform, rather robust, somewhat exceeding the supra-anal plate; subgenital plate produced into a compressed process with an acute apex. Caudal femora slender, moderately inflated in the proximal half; caudal tibiae bearing eleven or twelve spines on the lateral margins.

General color mars brown dorsad, wood brown ventrad; spines of the caudal tibiae with blackish tips. The female bears distinct seal brown lines extending from the vertex to the caudal margin of the pronotum mesad of the lateral carinae, and a parallel pair from the eyes to and over the pleura, where they merge into a single bar. Lateral carinae of the pronotum and a pair of lines on the head, which are cephalic continuations of the carinal stripes, ocher yellow; ventro-lateral portion of the head and the ventral section of the lateral lobes buff. Caudal femora with the dorsal section of the pagina clouded with dull blue brown.

Measurements.

	Male.	Female.
	<i>mm.</i>	<i>mm.</i>
Length of body	20.5	26.3
Length of pronotum	3.5	4.3
Length of tegmen	17.5	21.2
Length of caudal femur	13.0	16.0

Two paratypic females have been examined, one taken in August, the other in September. These specimens both represent the uniform type of coloration exhibited by the male, the August specimen, however, having the ventro-lateral section of the head and the ventral portion of the lateral lobes yellowish, while there are traces of the yellowish lines on the head and pronotum.

TOXOPTERUS Bolivar.

TOXOPTERUS MINIATUS Bolivar.

Chapada, Matto Grosso, Brazil. April-November. (H. H. Smith.)
[U.S.N.M.] Two males, three females.

The remarks previously made by the author^a regarding the color variations of this species apply to the material examined in this connection. One male specimen has distinct parallel black lines on the head and flanking the median carina of the pronotum. This phase was also noticed in one specimen from Sapucay, Paraguay. The above record connects the localities from which the species has been recorded, and shows it is apparently of regular occurrence through at least the upper Amazonian and Madieran region and that of the Paraguay as far south at least as the vicinity of Asuncion.

STAUORHECTUS Giglio-Tos.

KEY TO THE FORMS.

This key is purely artificial and merely tentative, as two species are only known from one sex, one from the male, the other from the female. Until the unknown sexes are secured no key based on structural characters can be made.

- A. Caudal femora without or with rather indistinct pregenicular annuli of yellow. Size medium or large. Tegmina of male slightly exceeding the abdomen.
- B. Greatest width of the fastigium considerably greater than the length. Caudal tibiae of female reddish or purplish. Colors green and brown with buff. Form rather robust.
- C. Size large; female ranging from 30 to 38 mm. in length of body.
longicornis Giglio-Tos.
- CC. Size medium; female ranging from 28 to 30 mm. in length of body.
longicornis variegatus, new subspecies.
- BB. Greatest width of fastigium slightly greater than the length. Caudal tibiae of female glaucous. Colors green and brown without buff. Form slender.....*glaucoipes* Rehn.
- AA. Caudal femora with very pronounced pregenicular annuli of yellow. Size small. Tegmina of male much shorter than the abdomen.
brevipennis, new species.

STAUORHECTUS LONGICORNIS Giglio-Tos.

Corumbá, Matto Grosso, Brazil (highland). March. [U.S.N.M.]
Two males, three females.

One of the females belongs to the color phase with the dorsum of the pronotum uniform smoke brown, while one has the lateral carinae of the pronotum more constricted than the others.

The records of this species now cover from Caiza, Bolivia, and Corumbá, Brazil, to Cordoba, Argentina.

^aProc. Acad. Nat. Sci., Phila., 1906.

STAUORHECTUS LONGICORNIS VARIEGATUS, new subspecies.

Types.—Male and female; Chapada, Matto Grosso, Brazil. April. (H. H. Smith.) [U.S.N.M., No. 9487.]

This form is a smaller race of *S. longicornis* inhabiting the vicinity of Cuyaba, but the extent of its range is not known. Compared with Corumbá specimens of typical *longicornis*, it shows, in addition to the smaller size, a comparatively more robust form and a slightly broader eye. The color forms found in the typical race are probably all found in this form, two being present in the material examined, types *a* and *c*,^a the type specimens both belonging to the former.

Measurements.

	Male.	Female.
	<i>mm.</i>	<i>mm.</i>
Length of body	21.5	28.2
Length of pronotum	4.0	5.2
Length of tegmen	15.5	18.8
Length of caudal femur	14.5	18.6

One male and two females from the type locality have also been examined. The months represented are April and May.

STAUORHECTUS BREVIPENNIS, new species.

Type.—Male; Corumbá, Matto Grosso, Brazil (highland). March. (H. H. Smith.) [U.S.N.M., No. 9488.]

This species differs from the preceding in the smaller size, abbreviated tegmina, aborted wings, the more compressed fastigium and pronotum, and the shorter subgenital plate.

Size small; form moderately slender. Head with the occiput slightly ascending and arched, not exceeding the pronotum in length; fastigium acute with the apex blunt; in length less than the space between the eyes, moderately excavated; lateral foveolæ lateral in position, moderately impressed and without definite form; face moderately retreating, with the dorsal section vertical and narrowly rounded into the dorsum of the fastigium; frontal costa with the margins subparallel to the ocellus and very gradually diverging thence to the clypeus, slightly expanded between the antennæ, moderately sulcate dorsad, the ventral section excavate from margin to margin, but not sulcate; eyes ovoid, nearly twice the length of the infra-ocular sulcus; antennæ about twice the length of the head and pronotum together, depressed but not expanded proximad, rounded distad. Pronotum half again as long as the caudal dorsal width; cephalic margin arcuate with a slight median truncation, caudal margin slightly rotundato-angulate, a very faint trace of constricted lateral carinæ present; median carina very distinct,

^aProc. Acad. Nat. Sci. Phila., 1906.

intersected but once; prozona twice the length of the metazona, the latter distinctly rugoso-punctate; lateral lobes slightly longer than deep, caudal margin with an arcuate emargination, ventral margin with the caudal half obliquely descending, the cephalic half roundly emarginate. Interspace between the mesosternal lobes subquadrate, very slightly broader than long; metasternum with the lobes subattinent. Tegmina about half again as long as the head and pronotum together, falling considerably short of the apex of the abdomen, inflated; costal margin strongly arcuate in the distal half, sutural margin straight, apical margin acute-angulate with the apex rounded; marginal field quite narrow and with practically no dilation, intercalary vein strong, arcuate, immediate apex with subquadrate areas, anal field subequal in width for almost the entire length. Wings extremely short. Abdomen very slightly compressed; supra-anal plate subtrigonal, slightly longer than the proximal width; cerci styli-form, slender, slightly exceeding the apex of the supra-anal plate; subgenital plate conical, moderately produced, the apex blunt when viewed lateral, the dorsal margin compressed and carinate distad. Cephalic and median limbs rather slender, of medium size. Caudal femora nearly equal to the body in length, moderately expanded proximad, the pagina regularly and distinctly sculptured, the genicular region with the lobes extending well below the level of the ventral surface; caudal tibiae slightly shorter than the femora, slightly sinuate, lateral margins bearing nine or ten spines, the entire tibiae and tarsi supplied with long hair.

General color of the head and pronotum lemon yellow, a pair of black lines extending from the lateral borders of the fastigium, broadening caudad of the eye to half the depth of the same and extending to the caudal margin of the lateral lobe of the pronotum of which it occupies half the depth; dorsal margin sharply defined, ventral margin blending somewhat into the yellow color; eyes prouts brown; antennae tawny-olive proximad, blackish distad; face slightly washed with dull greenish, the infra-ocular suture marked with the same color. Pleura lemon-yellow with a narrow blackish dorsad bar. Tegmina pale tawny-olive. Abdomen dull gallstone yellow, the apex dull ocher yellow. Cephalic and median limbs oil green; caudal femora ochraceous, with the genicular region black and a very distinct pre-genicular annulus of gamboge yellow; caudal tibiae with the genicular region black, then clear malachite green blending into olive-green, with the distal portion paler than the median, spines with black; tarsi near pale chromium green.

Measurements.

Length of body	mm.
Length of pronotum	18.0
Length of tegmina	3.5
Length of femina	8.5
Length of caudal femur.....	12.0

An additional paratype male has also been examined. Aside from the fact that the antennae are somewhat darker it does not differ from the type.

BORELLIA, new genus.

Allied to *Staurorhectus* Giglio-Tos, but differing in the head, which is not elevated, and with the face much less retreating, the distinct lateral foveole and carinae of the angle of the fastigium and frontal costa, the slenderer and shorter antennae, the more robust caudal femora, the shorter and thicker male cerci and the shorter and less produced male subgenital plate.

Type.—*Borellia carinata*, new species.

I take pleasure in dedicating this genus to Dr. Alfredo Borelli, of Turin, Italy, who has contributed greatly to our knowledge of South American Orthoptera by careful field work in the Gran Chaco region, furnishing the basis for Doctor Giglio-Tos's exhaustive papers on the Orthoptera of northern Argentina, Paraguay, and southern Bolivia.

BORELLIA CARINATA, new species.

Types.—Male and female; Chapada, Matto Grosso, Brazil. June. (H. H. Smith.) [U.S.N.M. No. 9486.]

Size small; form moderately robust; surface glabrous. Head slightly longer than the pronotum, the occiput very gently arcuate but not distinctly elevated; fastigium slightly declivent, the angle rectangulate (male) or distinctly obtuse-angulate, the extension beyond the interocular region being slightly (male) or very considerably (female) less than the width of the latter, dorsum of the fastigium moderately excavated; lateral foveole dorsad, distinctly impressed with the margins well raised and complete, oblong in shape, the length slightly more than twice the width; face moderately retreating, the dorsal section rounded, more so in the female than in the male, which is also the case with the angle of the face, the male having it more marked and less rounded than in the female; frontal costa acute dorsad, regularly expanding ventrad and reaching the clypus, very slightly constricted at the ocellus, distinctly but not deeply sulcate in both sexes; eyes subovoid, slightly more acute and slenderer in the male than in the female, very distinctly longer than the infra-ocular sulcus in both sexes; antennae but very slightly exceeding the head and pronotum in length, slightly depressed proximad. Pronotum gently rounded

dorsad; cephalic margin very gently arcuate, caudal margin obtuse-angulate in both sexes, distinct lateral shoulders present on the metazona, rounded on the prozona; prozona and metazona subequal in length, the metazona regularly but not very deeply punctate; median carina cut only by the principal sulcus, traces of constricted lateral carinae present except mesad, and much more distinct in the female than in the male; lateral lobes very slightly longer than deep, the caudal margin slightly sinuate, the ventral with an irregular median obtuse angle. Interspace between the mesosternal lobes very slightly longitudinal in the male, very slightly transverse in the female; metasternal lobes subattingent in the male, approximate but very distinctly separate in the female. Tegmina considerably exceeding the apex of the abdomen, and slightly exceeding the tips of the femora; marginal field of the male distinctly but not greatly dilated, straight in the female, a slight proximal lobe present in both sexes; a distinct but sinuate intercalary vein present, the sinuate character being due to the very numerous short transverse nervures extending from the median and ulnar vein and in this way slightly diverting the vein from a direct course; ulnar area broad in the male, with several straight cross veins but no longitudinal vein, ulnar area narrow in the female and with a distinct longitudinal dividing vein; anal field irregularly reticulate in both sexes. Wings with the greatest width contained about twice in the length. Abdomen slightly compressed; supra-anal plate subobovate in shape, the apex blunt, surface without sulci except grooves paralleling the lateral and apical margins; cerci rather short, styliiform, acute, very slightly longer than the supra-anal plate; subgenital plate somewhat inflated, bullate, the apex a slight, blunt tubercle. Cephalic and median limbs short, distinctly inflated in the male; caudal femora robust, moderately inflated, and regularly tapering to the narrowest section which is immediately pregenicular, pagina distinctly and regularly sculptured; caudal tibiae distinctly shorter than the femora, lateral margins armed with ten spines, internal spurs subequal; tarsi provided with large arolia.

General color burnt umber, the male with a touch of olive and without distinct maculations except a series of weak brownish spots on the ulnar area of the tegmina, which are hyaline suffused with the general color, and the dull brownish tips of the otherwise hyaline wings. The female is marked on the dorsum of the head and pronotum with a broad bar of apple green extending back from the vertex, while the pronotum and head bear more or less distinct longitudinal lateral touches of several shades of brown, and the spots on the tegmina are distinct, subquadrate, and blackish, but more distad than in the male. Caudal femora with the ventral surface ochraceous, the lateral faces touched with dull greenish and the genicular region blackish; caudal tibiae ochraceous-rufous, dull buff distad, the spines and spurs tipped with black; tarsi buffy.

Measurements.

	Male.	Female.
	<i>mm.</i>	<i>mm.</i>
Length of body	18.0	21.3
Length of pronotum	3.5	4.3
Length of tegmen	14.5	17.5
Length of caudal femur	10.5	12.5

Three paratype females taken in April and June have also been examined. No important difference between these and the type has been noticed. Several of the specimens have one or both of the caudal femora with ten spines on the lateral margins, while the intensity of the dorsal green bar is subject to variation. The paratype specimens have the lateral aspects of the head paler and greenish instead of dark as in the type, leaving a distinct bar extending from the dorsum of the eye back to and over the dorsum of the pronotum.

STEREOTETTIX, ^a new genus.

This genus is closer related to *Borellia* Rehn, than any other genus of the group. From this it differs in the position of the lateral foveolæ, the presence of distinct parallel lateral carinæ on the pronotum, in the very narrow discoidal field of the tegmen, in the much more transverse interspace between the mesosternal lobes and the more elongate and strongly sulcate supra-anal plate of the male.

Superficially, this genus much resembles *Euplectrotettix* Bruner, a member of the Scyllini.

Type.—*Stereotettix paralogistes*, new species.

STEREOTETTIX PARALOGISTES, ^b new species.

Types.—Male and female; Chapada, Matto Grosso, Brazil. June. (H. H. Smith.) [U. S. Nat. Mus. No. 9490.]

Size very small; form moderately robust. Head slightly shorter than the pronotum; occiput gently arcuate, in the female a little more elevated dorsad of the level of the pronotum than in the male; fastigium extending beyond the eyes a distinct slightly or considerably less than the narrowest portion of the interocular region, the angle rectangulate in the male, subrectangulate in the female, the dorsum with an apical crescentic depression which leaves the margins in relief; lateral foveolæ ventrad of the fastigial margin and not visible from the dorsum, except the sections toward the frontal costa, elongate lanceolate, very deeply impressed; angle of the face considerably retreating, the apex truncate, forming a right angle with the fastigium; frontal costa rather acute dorsad, regularly expanding

^a Στερεος stable, τεττιξ, grasshopper.

^b Παραλογιστης, one who deceives by false calculation.

from the ocellus to the clypeus, distinctly but not deeply sulcate dorsad, impressed ventrad, this becoming less apparently toward the clypeus; eyes moderately prominent in the male, less so in the female, reniform ovate in outline, very considerably or slightly longer than the infra-ocular sulcus; antennae considerably (male) or slightly (female) longer than the head and pronotum together, depressed and very slightly expanded proximad. Pronotum moderately deplanate dorsad; cephalic margin very slightly arcuate, caudal margin obtuse-angulate; prozona distinctly but not very considerably longer than the metazona, the latter thickly but not very deeply punctate; median carina distinct, cut only by the principal sulcus; lateral carinae distinct, nearly parallel, with a very slight constriction from the first to third sulci in the male, and in the female apparently with a very slight divergence through the entire length, all three transverse sulci intersecting these carinae; lateral lobes about as deep as the dorsal length of the lobe, ventral margin rounded mesad. Interspace between the mesosternal lobes distinctly transverse in both sexes; metasternal lobes attingent (male) or subattingent (female). Tegmina falling slightly short of the apex of the abdomen and very considerably short of the tips of the femora in the male, or exceeding the abdomen and equaling the femora in the female; marginal field expanded in both sexes, but stronger in the male than in the female; a broken or sinuate intercalary vein present in both sexes, but more distinct and continuous in the female than in the male; apex rounded, sutural margins nearly straight, wings reaching to the tips of the tegmina when in repose. Abdomen considerably compressed; supra-anal arched, elongate trigonal in shape with a longitudinal median depression; cerci rather slender styloform, reaching to the apex of the supra-anal plate; subgenital plate conic, the apex bluntly tuberculate, and extending very little beyond the supra-anal plate. Cephalic and median limbs of medium size, slender; caudal femora moderately robust, pagina distinctly but rather shallowly sculptured, the genicular region slightly inflated; caudal tibiae distinctly but not considerably shorter than the femora, armed with 8 spines on the lateral margins; internal spurs unequal but the difference is not as great as seen in *Scyllina* and allied genera; arolia of the caudal tarsi of medium size, trigonal.

General color wood-brown, touched dorsad with fawn, a distinct post-ocular bar extending caudad to the caudal margin of the lateral lobes, rather irregular and broken on the lateral lobes, clove-brown in color; face spotted with bister; antennae dark distad; eyes raw amber; tegmina with the series of faint dark subquadrate spots on the marginal field. Cephalic and median limbs more or less completely and regularly annulate with clove-brown, the annuli of the femora weaker than the tibial and tarsal ones. Caudal femora mesad on the dorso-lateral

faces with a trigonal velvety clove-brown spot; lateral faces ivory white; caudal tibiae very faint greenish, the spines tipped with black.

Measurements.

	Male.	Female.
	<i>mm.</i>	<i>mm.</i>
Length of body	12.0	16.0
Length of pronotum	2.3	3.0
Length of tegmen	7.2	11.3
Length of caudal femur.....	7.2	9.5

A paratyptic series of one male and two females, taken in June and September, have also been examined. Aside from the fact that the fastigium is slightly broader in these females than in the type, no character at variance with those of the types are noticed.

TRISTIRA Brunner.

1900. *Tristira* BRUNNER, *Comun. Museo Nac., Buenos Aires, I, No. 7, p. 235, fig.*

Type.—*T. bergi* Brunner.

This very peculiar genus is considered by Brunner to be related to *Stauronotus* (*Dociostaurus*), but the general appearance and structure is so different and with so many peculiarities that the type is probably worthy of separation as a group *Tristiri*. This genus in many respects resembles *Closteridea* Scudder,^a from Chatham Island, Galapagos, and it is quite likely they are closely related.

TRISTIRA BERGI Brunner.

1900. *Tristira bergi* BRUNNER, *Comun. Museo Nac., Buenos Aires, I, No. 7, p. 236, fig.* [Filaret, Tierra del Fuego, Argentina.]

Gregory Bay, Straits of Magellan. (U. S. Fish Commission.) [U.S.N.M.] One male, four females.

In all the specimens but one the lateral abdominal carinae are marked with blackish, and in one female the median is the only one of the five not marked.^b

EUPLECTROTETTIX Bruner.

EUPLECTROTETTIX SCHULZI Bruner.

1900. *Euplectrotettix schulzi* BRUNER, *Acc. Gen. Spec. Locusts Argent., p. 41.* [Vicinity of Cordoba, Argentina.]

Cordoba, Argentina. [U.S.N.M.] One male, one female.

In these individuals the three femoral dark bars which are moder-

^a Bull. Mus. Comp. Zoöl., XXV, No. 1, p. 9, pl. 1, figs. 4-5.

^b Brunner's description says: "Abdomen compressum, tricarinarum," while one of the specimens in his figure and the material in hand show five carinae, one median and two lateral pairs.

ately distinct on the dorsal surface are practically obsolete on the external face, the dorso-lateral region being suffused with a longitudinal blackish-brown bar.

SCYLLINA Stål.

SCYLLINA UNIFORMIS, new species.

Type.—Female; Chapada, Matto Grosso, Brazil. April. (H. H. Smith.) [U.S.N.M. No. 9482.]

A peculiar species in some respects resembling *Boöpedon*, the weak and but moderately bowed lateral carinae of the pronotum and the rather uniform coloration being distinctive.

Size medium; form robust, moderately but distinctly compressed. Head with the fastigium subrectangulate; depressed area crescentic cephalad and becoming indistinct caudad, interspace between the eyes slightly less than twice the width of the dorsal portion of the frontal costa; lateral foveolæ indistinct, impresso-punctate; frontal costa tumid, subequal, slightly constricted dorsad, lateral facial carinae distinctly diverging ventrad; fastigium rounding into the frontal costa when viewed laterad; no distinct angle present; eyes acute reniform, slightly longer than the infra-ocular portion of the genæ; antennæ less than twice the length of the head, depressed except distad. Pronotum but little longer than greatest width; cephalic margin very broadly obtuse-angulate, caudal margin obtuse-angulate; median carina distinct, somewhat elevated, lateral carina very weak, marked more by callosities than true carinal ridges, moderately constricted, obsolete mesad; transverse sulcus bisecting the median carina very slightly in advance of the middle; lateral lobes very much deeper than long, ventral margin obtuse-angulate. Tegmina slightly exceeding the tips of the caudal femora; costal margin arcuate, with a slight basal expansion; apical margin obliquely rotundato-truncate; postradial area irregularly areolate and without a distinct intercalary vein. Wings large, costal margin distinctly arcuate distad. Cephalic and median limbs slender. Caudal femora robust, evenly and regularly but distinctly constricted in the pregenicular region, the proximal half considerably inflated, external pagina well marked; caudal tibiæ armed laterad with ten spines, longer internal calcar very slightly more than twice the length of the shorter.

General color between liver-brown and chestnut. Head suffused slightly with hoary; eyes tawny-olive; antennæ buff. Pronotum deep liver-brown, unicolorous. Tegmina very obscurely blotched with quadrate spots, between which the tegmen is hyaline, except proximad, where it is more coriaceous. Wings hyaline, with a very slight greenish-yellow suffusion proximad, apex slightly suffused. Limbs vinaceous-cinnamon and liver-brown; caudal femora with very obscure

dorsal bars, genicular arches blackish, carinæ of the lateral face beaded with blackish, ventral sulcus poppy-red; caudal tibiæ orange-vermilion, slightly speckled with brownish on the latero-proximal portion; caudal tarsi near poppy-red dorsad, very dull magenta ventrad.

Measurements.

Length of body.....	mm. 34.0
Length of pronotum.....	7.0
Length of tegmen.....	30.5
Length of caudal femur.....	22.5

A paratypic female was also examined (August). The color of this specimen differs from the type in that it is more brownish, and the caudal femora are distinctly barred dorsad.

SCYLLINA BRUNNERI (Giglio-Tos).

1895. *Pseudostauronotus brunneri* GIGLIO-TOS, Zool. Jahrb., Abth. Syst., VIII, p. 810. [Paraguay.]

Chapada, Matto Grosso, Brazil. April, August, and September. (H. H. Smith.) [U.S.N.M.] Five males and two females.

This exceedingly variable species is represented by individuals of all the three color phases so well described by Giglio-Tos. Type "a," with distinctly marked median and lateral pronotal carinæ and contrasted coloration, is represented by two males; type "b," with the dorsal surface uniform, but with the pronotal cross moderately distinct and the caudal femora barred, is represented by two females; type "c," which is quite uniformly colored without dorsal cross, restricted tegminal maculations and incomplete femoral bars, is represented by three males.

This species has been recorded from Paraguay, Caiza, southern Bolivia, and Colon. The latter record, although made by the describer,^a appears rather doubtful.

SCYLLINA SUFFUSA, new species.

Type.—Female; Chapada, Matto Grosso, Brazil. September. (H. H. Smith.) [Cat. No. 9483, U.S.N.M.]

Allied to *S. picta* and *conspersa* on one hand and *S. varipes* and *smithi* on the other. From *picta* it can be readily separated by the slender build, while *conspersa* has shorter tegmina, less constricted lateral pronotal carinæ, broader frontal costa, and less distinct lateral foveolæ. From *varipes* it can be distinguished by the more arcuate and less retreating face, the distinct lateral foveolæ, the more arcuate caudal margin of the pronotum, the somewhat less compressed body and slenderer limbs; from *smithi* it can be separated by the

^aBoll. Musei di Zool. et Anat. Comp., Torino, XII, No. 301, p. 3, 1897.

rather broader body, the broader fastigium, the deeply excavated lateral foveolæ, the more angulate caudal margin of the pronotum, and the more rounded face.

Size, medium; form slender. Head with the fastigium rather broad, blunt rectangulate, depressed area crescentic, rather shallow, interspace between the eyes over half again as broad as the frontal costa at its narrowest (dorsal) part; lateral foveolæ elongate, narrow, deeply impressed; fastigium rounding moderately into the frontal costa when viewed laterally; frontal costa narrow dorsad, gradually but slightly expanding ventrad, biseriate punctate dorsad of the ocellus; supplementary facial carinæ precurrent, diverging ventrad; eyes subreniform, slightly longer than the infra-ocular portion of the genæ; antennæ slender, slightly depressed. Pronotum with the cephalic margin very slightly arcuate, caudal margin narrowly obtuse-angulate, nearly rectangulate; median carina distinct, cut slightly cephalad of the middle, lateral carinæ distinct cephalad and caudad, subobsolete mesad, distinctly and considerably constricted; lateral lobes over half again as deep as long, cephalic and ventral margins subparallel, ventral margin arcuate obtuse-angulate. Tegmina elongate, extending beyond the apex of the abdomen a distance slightly greater than the length of the pronotum; costal dilation slight; apex rotundato-truncate; post-radial area irregularly areolate proximad, biareolate distad, a crude intercalary vein present distad. Cephalic and median limbs slender. Caudal femora slender, proximal enlarged portion considerably inflated, the distal section evenly narrowed, pattern of the pagina regularly and distinctly impressed, genicular region slightly inflated; caudal tibiæ armed with ten spines laterad, longer internal spur with the apex sharply hooked, slightly more than twice the length of the shorter.

General colors cinnamon and clove brown. Head dark dorsad, with a slight and indistinct post-ocular line and a distinct but narrow infra-ocular line along the suture; eyes dark ferruginous; antennæ dark. Pronotum with the light lateral carinæ distinct, obscure mesad; lateral lobes with a heavy blotch, as usual in the genus, extending from the principal sulcus dorsad obliquely ventrad to the ventro-cephalic angle, caudal portion with several regular dark blotched. Tegmina regularly and subequally blotched, the blotches rather indistinct distad; anal area with small quadrate blotches thickly distributed. Limbs marked with both general colors: caudal femora strongly barred transversely dorsad, the bars extending obliquely proximad over the dorsal half of the lateral face, dorsal surface with the light areas touched with ferruginous, the light portion of the lateral face inclining toward bone-white, genicular region dark, ventral face very dark wine purple; caudal tibiæ ranging from very pale buff distad through poppy-red to purplish, the lateral faces blotched irregularly with brown, spines blackish nearly their whole length, spurs with the tips and caudal margins

blackish; caudal tarsi with the two proximal joints dull purplish with the tips and the third joint ochraceous.

Measurements.

Length of body.....	mm.
Length of pronotum.....	33.0
Length of tegmen.....	6.2
Length of caudal femur.....	32.0
	22.0

The type is unique.

SCYLLINA SMITHI, new species.

Types.—Male and female; Chapada, Matto Grosso, Brazil. May (male) and September (female). (H. H. Smith.) [Cat. No. 9484, U.S.N.M.]

Allied to *S. varipes* Bruner but slenderer and differing in the longer tegmina and caudal limbs, the fuller eyes, the subequal lateral lobes and the more constricted lateral carinae of the pronotum as well as the longer, straighter, and more hooked major tibial spur.

Size medium; form slender. Head slightly ascending; fastigium rounded rectangular, shallow, crescentic, interspace between the eyes slightly greater than the dorsal width of the frontal costa, lateral foveolae oblong, impresso-punctate; angle of the fastigium and frontal costa viewed laterad narrowly rounded in the male, moderately rounded in the female, face distinctly and strongly retreating; frontal costa subequal, slightly constricted dorsad and faintly biseriate punctate; supplementary facial carinae distinct, diverging ventrad; eyes subtrigonal, reniform, about half as long again as broad, pointed dorsad, distinctly longer than the infra-ocular portion of the genae; antennae slightly depressed proximad. Pronotum with the cephalic margin slightly arcuate, caudal margin obtuse-angulate, the angle broader and more rounded in the female than in the male, lateral carinae distinct cephalad and caudad, obsolete mesad and strongly constricted; median carina distinct, regular, cut very little cephalad of the middle; lateral lobes about a third again as deep as long, cephalic and caudal margins straight, subparallel, ventral margin obtuse-angulate, more rounded in the male than in the female. Tegmina elongate, extending considerably beyond the apex of the abdomen and exceeding the tips of the caudal femora by slightly less than the length of the pronotum, costal dilation slight, tips rotundato-truncate; postradial area irregularly areolate proximad, roughly biareolate distad, no distinct intercalary vein present in the female, distinct in the male. Caudal femora elongate, slender, distal inflation considerable, regular, distal third quite slender, pattern of the pagina distinct; caudal tibiae with ten to twelve lateral spines, longer internal spur over twice the length of the shorter, rather straight with the tip hooked.

General color seal brown and ochraceous, a distinct subequal median line extending from the fastigium to the extremity of the anal area of the tegmina. Head dark above, except for the median line, no distinct postocular bar aside from the dorsal suffusion, a distinct infraocular dark sutural line present in the male, unmarked in the female; eyes ferruginous; antennae ochraceous buff, darkened distad. Pronotum with the lateral carinae distinctly marked with the lighter color, weak mesad; lateral lobes with the two base colors intermingled, the usual oblique bar broken in the male, distinct in the female. Tegmina with rather regular transverse bars, heavier and wider distad than proximad, the anal area, except the median line, and angle very dark and hardly maculate in the female. Caudal femora distinctly barred dorsad and obliquely proximad on the lateral faces with darker, the pregenicular dark bar wide, ventro-lateral carina beaded with the dark color, very closely beaded in the male, pregenicular light annulus complete, genicular region dark, ventro-lateral face very dark heliotrope purple, ventro-internal face and sulcus maroon purple; caudal tibiae saturn-red proximad blending into dull carmine distad, blotched with brown laterad, spines blackish at least half their length, spurs blackish distad and on the caudal margins.

Measurements.

	Male.	Female.
	<i>mm.</i>	<i>mm.</i>
Length of body	26.5	31.2
Length of pronotum	4.8	5.8
Length of tegmen	24.3	29.5
Length of caudal femur	17.5	20.5

Three paratypic males have also been studied (May and June). These present a great amount of color variation, chiefly, however, in the intensity. The suffusion of the dorsum of the head is limited in some and distinct postocular bars present; the median line is obsolete on the anal area of the tegmina in several, and in these specimens the angle of the tegmina bears a pale line; while several specimens have the lateral lobes with large strongly contrasted blotches of color instead of small irregularly distributed spots.

SCYLLINA SCHISTOCERCOIDES, new species.

Type.—Female; Chapada, Matto Grosso, Brazil. (H. H. Smith.) [Cat. No. 9485, U.S.N.M.]

Closely allied to *S. borrellii* Giglio-Tos, from the Rio Apa region, Paraguay, but much smaller and with other differences, such as the distinct blackish blotches on the lateral lobes of the pronotum.

Size rather large; form rather slender and superficially resembling species of the genus *Schistocerca*. Head somewhat ascending; fas-

tigium rounded rectangular, slightly impressed in the form of a crescent, interspace between the eyes slightly more than half again as broad as the dorsal width of the frontal costa; lateral foveolæ rather weak, punctate; angle of the fastigium and the frontal costa narrowly rounded, the face roundly and moderately retreating; frontal costa tumid, strongly constricted dorsad, regularly but slightly expanding ventrad of the inter-antennal region, biseriate punctate dorsad of the ocellus; eyes subreniform, rather sharply angulate dorsad, about equal in length to the infra-ocular portion of the genæ; antennæ slightly depressed proximad. Pronotum with the cephalic margin slightly arcuate, caudal margin very obtusely angulate, the angle rounded, lateral carinæ moderately distinct, obsolete mesad, moderately constricted, the carinæ regularly and moderately diverging caudad; median carina distinct, low, cut slightly in advance of the middle; lateral lobes of the pronotum about a third again as deep as long, the cephalic and caudal margins subparallel, ventral margin obtuse-angulate, slightly emarginate cephalad. Tegmina moderately elongate, exceeding the apex of the abdomen by little less than the combined length of the head and pronotum, exceeding the tips of the caudal femora by nearly the length of the pronotum; costal dilation moderate; tips rotundato-truncate; postradial area roughly biareolate distad, no distinct intercalary vein present. Caudal femora slender, proximal portion moderately inflated, distal portion regularly narrowed, pattern of the pagina distinctly and sharply sculptured; caudal tibiæ with ten lateral spines present, longer internal spurs slightly more than twice the length of the shorter, comparatively straight except for the recurved and hooked tips.

General colors prouts brown and ochraceous, a median pale line extending from the fastigium to the tips of the anal area of the tegmina. Head with the median line broad, flanked laterad by large blotches of darker, which replace the postocular bars and extend around the caudal margin of the eye to the infra-ocular sulcus, which is broadly infuscate to the angle of the mandible; eyes cinnamon; antennæ pale ochraceous, infuscate distad. Pronotum dark above, excepting the median line, with the lateral carinæ very faintly marked with lighter; lateral lobes slightly suffused dorsad, the usual oblique blotch very deep in color and large in size. Tegmina with the suffusions rather weak, the dark areas wide and unbroken except distad, costal area hardly suffused. Caudal femora pale, with very slight indications of transverse bars dorsad, lateral face dark brown immediately along the ventro-lateral carina, otherwise unmarked; genicular region brownish; proximal two-thirds of the ventral surface very dark verditer blue; caudal tibiæ with the proximal two-thirds orange, distal third very dark verditer blue, spines two-thirds blackish; tarsi washed above with the blue of the tibiæ.

Measurements.

Length of body.....	mm.
Length of pronotum	38.0
Length of tegmen.....	7.2
Length of femur.....	39.0
Length of caudal femur.....	24.5

The type is unique. The species superficially bears considerable resemblance to species of the genus *Schistocerca*, a fact noted by Giglio-Tos in his description of the closely allied *S. borellii*.

STIRAPLEURA Scudder.

STIRAPLEURA BRUNNEA, new species.

Types.—Male and female; Chapada, Matto Grosso, Brazil. August (female) and September (male). (H. H. Smith.) [U.S.N.M., No. 9489.]

Allied to *S. pallida* and *obscura* Bruner, but differing from the former in the larger head, broader fastigium, constricted pronotum, and more uniform coloration. From *S. obscura* it differs in the larger size, shallower and narrower fastigium, and shorter but more inflated caudal femora.

Size medium; form moderately robust. Head with the fastigium broad, slightly acute-angulate in the male, obtuse-angulate in the female, rounded, depressed area crescentic in the female, semicircular in the male; interspace between the eyes very little narrower than the greatest width of the fastigium and but slightly more than half again as wide as the dorsal portion of the frontal costa; lateral foveolæ slightly longer than wide, impresso-punctate; angle of the fastigium and frontal costa when viewed laterad very slightly rounded; face distinctly retreating, slightly arcuate; frontal costa tumid, slightly but gradually expanding ventrad, not sulcate, irregularly punctate; supplementary facial carinae distinct, strongly divergent; eyes ovoid, distinctly (male) or slightly (female) longer than the infra-ocular portion of the genæ; antennæ slightly depressed proximad. Pronotum with the cephalic margin slightly arcuate, caudal margin obtuse-angulate, the angle very narrowly rounded; median carina distinct, cut in the middle; lateral carinae distinct cephalad and caudad, obsolete mesad, moderately constricted; lateral lobes about half again as deep as long, cephalic and caudal margins parallel, ventral margin rounded, rotundato-emarginate cephalad. Tegmina extending beyond the tips of the caudal femora by a distance slightly less than the length of the pronotum; veins coarse; tips rotundate; costal dilation slight; postradial area irregularly areolate with a crude biareolate arrangement distad. Caudal femora considerably inflated proximad, constricted distad, the constriction of little

length, pattern of the pagina distinct, sharply cut; caudal femora with nine spines on the lateral margins; shorter tibial spurs about two-thirds the length of the longer, evenly curved.

General color dull cinnamon, washed irregularly with seal brown. Head without postocular bar; antennal fossa of both sexes and the infra-ocular sulcus marked with blackish; eyes ferruginous. Pronotum with a very faint median bar in the female margined laterad by faint blotches of darker color; lateral carinae faintly marked with lighter; lateral lobes unicolorous in the male, marked obliquely with a blackish bar in the female, the bar extending from the dorso-caudal to the ventro-cephalic angles. Tegmina obscurely sprinkled with small dark spots, the veins distinctly marked with darker in the female. Caudal femora light with the usual triangular spot on the dorsal surface distinct in the male, weak in the female, the lateral face in the female with a longitudinal dark line following the center of the pattern of the pagina, ventral surface pale, unicolorous; caudal tibiae dull yellowish, blackish proximad with a pale pregenicular annulus, spines blackish for about two-thirds the length.

Measurements.

	Male.	Female.
	<i>mm.</i>	<i>mm.</i>
Length of body	15.0	22.0
Length of pronotum	3.5	4.2
Length of tegmen	14.1	17.5
Length of caudal femur	10.0	12.0

A paratypic series of one male and two females have been studied, in addition to the types, taken in June and July. These are very similar to the male type in coloration, except that the male has the dorsum of the head and pronotum dark and the females have the dorsum of the metazona dark, a tendency toward which is noticed in the male type. The lined veins of the tegmina are distinct only in the female type. The color of the caudal tibiae is also subject to considerable variation, being livid in some specimens.